



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

1200 Sixth Avenue, Suite 155
Seattle, WA 98101

ENFORCEMENT &
COMPLIANCE ASSURANCE
DIVISION

**Clean Air Act - Section 112(r)
Risk Management Program
and EPCRA 312 – Tier II
Facility Inspection Report**

FACILITY INFORMATION:

Corporate Name: Chugach Electric Association, Inc.
Facility Name: South Central Power Project
Physical Address: 6075 Electron Drive
Anchorage, Alaska 99518
Phone Number: (907) 762-4835
Latitude/Longitude: 61.166667, -149.904444
RMP Facility ID#: 100000219051
FRS ID#: 110046491854
EJ Concerns: Yes (above 80%)

CONTACT INFORMATION (RMP Implementation):

Name: Chrissi Radeski
Title: Environmental Compliance Manager
Phone Number: (907) 602-9192
E-mail: chrissi_radeski@chugachelectric.com

EMERGENCY CONTACT INFORMATION:

Name: Christina Radeski
Phone (24-hr): (907) 602-9192
E-mail: chrissi_radeski@chugachelectric.com
Website: <https://www.chugachelectric.com/>

TRIP DETAILS:

Inspection Date: September 14, 2023
Inspection Time: 09:00 through 14:15
EPA Inspectors Team:
Edward Johannes, US EPA Region 10 SEE Grantee, Lead RMP Inspector
Terry Garcia, US EPA Region 10 SEE Grantee, RMP Inspector
Peter Phillips, US EPA Region 10 SEE Grantee, RMP Inspector
Erin Williams, US EPA Region 10, EPCRA/RMP Inspector

DATE AND PROGRAM LEVELS OF SUBMITTED RMP:

Initial Submission Date: September 19, 2012
Date of Latest Update: August 5, 2022

Process (Program 1, 2, 3) as reported in RMP:

Process ID	Description	Process Chemical ID	NAICS Code	Program Level	Chemical Name CAS Number	Quantity (lbs)
1000126073	SCR Aqueous Ammonia	100157719	221112	2	Ammonia, Aqueous (7664-41-7)	53,000

PURPOSE:

The purpose of this inspection was to determine whether this facility is in compliance with Section 112(r) of the Clean Air Act and Title 40 Code of Federal Regulations (CFR) Part 68, Chemical Accident Prevention Provisions.

- The facility has been previously inspected in the past 5 years: No ☒ Yes ☐
If Yes, Date of Last Inspection:
- The facility is High Risk: No ☒ Yes ☐
- Joint EPCRA inspection: No ☐ Yes ☒

CAA TITLE V AIR PERMIT:

Does the facility have a CAA Title V Permit? No ☒ Yes ☐

If Yes, Permit Number

RELEASE/ACCIDENT HISTORY:

Did the facility have a reportable release in the past 5 years? No ☒ Yes ☐

If Yes, Date and Description of the Release:

EPCRA TIER II REPORTING:

Did the facility submit the [Enter Year] Tier II report to the SERC? No ☐ Yes ☒

If Yes, Date the Tier II was submitted:

February 14, 2023

If No, calendar year of the most recent Tier II:

Did the facility submit a Tier II to the LEPC and local fire department? No ☐ Yes ☒

If Yes, Date the Tier II was submitted:

February 14, 2023

INSPECTION ENTRY:

The EPA Inspection Team, led by Edward Johannes, met with facility representatives at the South Central Power Project (facility) in Anchorage, AK. EPA arrived at the facility at 0900 hours and was joined by the following facility personnel:

Name	Title
Christina Radeski	CEA
Brian Goodman	CEA
Joshua Travis	CEA
Aaron Love	Plant Manager
Eugene Ori	UP Power Production
Nathaniel Lewis	Plant Manager, Sullivan

Was a state/county/or local emergency representative present? No ☒ Yes ☐

If Yes, Name and Title of Representative:

The facility is a first responder: No ☒ Yes ☐

If No, Responding Agency Anchorage Fire Department and NRC Alaska, Inc.

The inspection team was escorted to a conference room located in the facility's office building. Introductions were made by Edward Johannes, who provided a summary of the risk management program (RMP) and explained the purpose of the visit. Each team member presented his/her credentials.

EPA then requested an explanation of the facility's operations and any additional safety measures that should be taken during the site tour. Aaron Love, Brian Goodman, and Christina Radeski, gave a brief description of the facility, operations, and personal protective equipment required for the tour.

Prior to the inspection, EPA sent a certified notice of inspection letter to the facility informing them of the CAA Section 112(r)(6)(L) requirement that facility employees and employee representatives (such as a union representative) have the right to participate in the RMP inspection, and that a copy of the letter must be provided to the employee representative(s) and the letter posted in a manner accessible to employees in the facility.

The facility is unionized: No ☐ Yes ☒

If Yes, Name of Union IBEW Local 1547

An employee representative present during the facility visit: No ☐ Yes ☒

If Yes, Name/Title Brian Goodman, IBEW representative

GENERAL INFORMATION:

The facility is regulated under the Risk Management Program as a Program Level 2 and is owned and operated by Chugach Electric Association, Inc. (CEA). It was incorporated in Alaska on March 1, 1948, with funding under the Rural Electrification Act of 1936, as amended. CEA is the largest cooperative utility (co-op) in Alaska. The facility was placed into commercial service on February 1, 2013, and is Alaska's third-largest power plant. The utility provides wholesale and retail power to customers in southcentral Alaska, from the Kenai Peninsula to the south and as far north as Fairbanks. The facility has very high levels of automation and operates 24/7 with a minimum of two operators per 10 hour shifts and a six-man maintenance staff. There are sixteen full-time employees on site.

The facility has three natural gas-powered General Electric (GE) LM6000PF combustion turbines (CTs) rated at 48 MW, the three once-through turbine generators (OTSG) manufactured by IST, and a 57-MW steam turbine-generator from Mitsubishi Power Systems Americas, a 3 x 1 combined cycle system. In combined-cycle, the 800-degree hot exhaust of the CTs is used to make steam which powers the steam turbine-generator, thereby producing extra electricity with no additional fuel needed. Duct firing two of the three OTSGs will produce maximum steam turbine output for peak load purposes. Also included within each OTSG are selective catalytic reduction (using 29% aqueous ammonia) and CO catalysts to further reduce emissions. Presently, the plant operates with 11 ppm NOx from the CT and 4.5 ppm from the boiler stack. The official power plant rating is 182.5 MW with a heat rate of 6,382 Btu/kWh (LHV) at an average annual ambient temperature of 36 F.

The facility uses 29% aqueous ammonia at a rate of approximately 10,000 pounds every six weeks which is trucked to the facility by Univar. The 29% aqueous ammonia is stored in two 12,000-gallon horizontal aboveground storage tanks (ASTs) located outside the facility's power plant. The amount of ammonia in solution is approximately 53,000 pounds (exceeds the threshold quantity of 20,000 pounds for aqueous ammonia (concentration 20% or greater). The Ammonia Flow Control and Selective

Catalytic Reduction (SCR) Systems are located inside the facility's power plant. The aqueous ammonia is piped from the ASTs to each of the three SCR systems locations in the facility. The Ammonia Flow Control and SCR unit consists of two primary systems: 1) Ammonia Flow Control, Dilution Air Blower, and Ammonia vaporizer, and 2) Ammonia Injection Grid (AIG) and SCR Catalyst Reactor Housing. The SCR Systems are designed to reduce oxides of nitrogen (NOx) from combustion turbine exhaust gases produced by the CTs. Aqueous ammonia (29%) is injected in 13 points to the exhaust stream above the SCR catalyst bed after going thru the Ammonia Flow Control, Ammonia Vaporizer, and AIG systems. All these systems are monitored either by flow, pressure gradient, or temperature sensors and will activate alarms in the control center if certain conditions are not met. The exhaust gas mixed with the aqueous ammonia, or process gas, flows through the SCR catalyst bed, a chemical reaction occurs with the titanium/rubidium in the bed that reduces the NOx emissions to nitrogen (N₂) gas and water (H₂O) vapor.

As part of the emergency response program, the facility has contracted NRC Alaska, Inc. to respond to aqueous ammonia spills.

During the facility inspection, CEA representatives stated that no modifications to the NOx ammonia system have been made in the past 5 years; none are currently planned or underway.

ON-SITE OBSERVATIONS:

The facility tour was conducted from approximately 09:00 to 11:15. The inspection team was escorted by Christina Radeski, Joshua Travis, Aaron Love, Nathaniel Lewis, Eugene Ori, and Brian Goodman. The inspection team observed the area with the turbine generators, the two aqueous ammonia storage tanks, the pump used to offload aqueous ammonia from the tanker trucks to the aqueous ammonia storage tanks, and aqueous ammonia injection skid, aqueous ammonia injection stack, and in the control room the E-stops, ammonia emergency alarms, and Ammonia Transfer System (ATS) computer screen. The photographs that were taken at the facility are included in Attachment A to this report.

The tour began with a walk thru in the power plant building where CT 11 (Unit 1), 12 (Unit 2), and 13 (Unit 3) are located (Photo 1 and 2).

The tour moved outside to the south end of the power plant building where the 29% aqueous ammonia is stored in two 12,000-gallon ASTs located in a covered concrete dike containment area (Photo 3, 7, 11, and 12). The NFPA 704 hazard identifier placards were plainly posted at both bulk tanks and 29% aqueous ammonia labels were adhered on both of their sides (Photo 3, 5, and 7). The ammonia detector located at the ASTs is set to alarm at 25 ppm locally and at the Plant Control Room. Other safety features observed during the inspection were an Ammonia Horn Light Panel that indicates if the ASTs are overfilled or if ammonia vapor has been detected (Photo 8), a windsock on an adjacent building (Photo 4), an outside emergency shower station and an enclosed heated emergency eyewash and shower station (Photo 6, 11, and 12), pressure relief valves (Photo 7), grounding cable for the delivery tanker trucks (Photo 7 and 10), and pipelines that were clearly marked as to content and flow direction and all run above ground allowing for easier inspections and maintenance (Photo 3, 6, 7, and 9). The loading rack area where tanker trucks connect hoses to off-load aqueous ammonia to the ASTs was also observed (Photo 9).

The ammonia pump is used to transfer of aqueous ammonia from the delivery tanker trucks to the ASTs (Photo 13). This is securely kept inside the power plant building until needed. The aqueous ammonia skid (Photo 14) and aqueous ammonia injection stack (Photo 15) were observed. All piping were clearly marked as to content and flow direction.

In the Plant Control Room (Photo 16) the ammonia warning strobe light above the control room door (Photo 17), the E-stops (Photo 18), and Ammonia Transfer System (ATS) computer screen (Photo 19) were observed.

After touring the RMP-covered process areas at CEA, the inspection team returned to the conference room to review the RMP documentation. Upon completion of the document review, EPA provided a debriefing to Christina Radeski, Aaron Love, Eugene Ori, Joshua Travis, and Nathaniel Lewis.

INFORMATION COLLECTED FROM FACILITY:

1. SCR Operation and Maintenance Manual.
2. Ammonia Loading Area Material Response Map.
3. Operators Training Records.
4. Alternate Release Scenario and Worst Case Scenario Maximum Distance to Toxic Endpoint Map.
5. Emergency Evacuation Plan Map.

AREAS OF CONCERNS ADDRESSED IN CLOSING CONFERENCE:

1. CEA Safety Information does not identify the codes or standards used to design, build, or operate the process. [68.48(a)(5)]. This issue was previously identified in a 2014 EPA inspection.
2. CEA did not provide initial and refresher training documents for their operators. [68.54(a), (b), and (d)].
3. CEA did not prepare and implement procedures for maintaining process equipment. [68.56(a)].
4. CEA did not provide maintenance training records for employees involved in the process. [68.56(b)].
5. CEA did not provide documents that they performed or caused to be performed inspections or the frequency of inspections and test on process equipment [68,56(d)].
6. CEA did not certify their 2017 and 2020 compliance audit reports. [68.58(a)].
7. CEA did not provide an incident investigation policy. [68.60].
8. CEA did not provide written records or documented they performed annual emergency response coordination with local authorities in the last five years. [68.90(b)(4), 68.93(c), 68.96(a)].

DOCUMENTS REQUESTED NOT INCLUDED IN REPORT:

The following documents were requested during the inspection but are not included in this report.

Documents received were reviewed to determine compliance with Section 112(r) of the Clean Air Act.

1. Refresher Training for all operators and maintenance employees.
2. Certification signature page for both the 2017 and 2020 Compliance Audits.
3. Incident Investigation Policy.
4. MI-policy and standards used for inspections and maintenance of the aqueous ammonia process.
5. MI-training records for maintenance and inspections of the aqueous ammonia process.
6. MI-Explain basis for inspections and maintenance of the aqueous ammonia process.

CEA provided some of the requested follow-up documentation listed above via email on September 27, 2023.

INSPECTION REPORT CERTIFICATION:

This is to certify that I, Edward Johannes, was the lead inspector at this facility and that I have verified the accuracy of the observations in this inspection report:

EDWARD JOHANNES Digitally signed by EDWARD
(Affiliate) JOHANNES (Affiliate)
Date: 2024.01.11 10:22:34 -08'00'

Inspector Signature

JAVIER MORALES Digitally signed by JAVIER
MORALES
Date: 2024.01.11 11:12:38 -08'00'

RMP Coordinator/Approval

ERIN WILLIAMS Digitally signed by ERIN WILLIAMS
Date: 2024.01.11 14:41:42 -08'00'

EPCRA Coordinator/Approval

MATTHEW Digitally signed by MATTHEW
QUARTERMAN QUARTERMAN
Date: 2024.01.11 16:33:38 -08'00'

Land Enforcement Section Chief/Approval

Attachment A – Photo Log

Site Name: South Central Power Project

City, State: Anchorage, AK

Photographer: Peter Phillips

File	Date	Time	Description
1	9/14/2023	10:26 AM	Turbine 13 (1 of 3)
2	9/14/2023	10:26 AM	Turbines 12 and 11
3	9/14/2023	10:29 AM	Vessel overview
4	9/14/2023	10:29 AM	Windsock
5	9/14/2023	10:29 AM	29% aqua ammonia and NFPA 704 Placard
6	9/14/2023	10:30 AM	Heated emergency shower
7	9/14/2023	10:30 AM	Vessel and grounding cable
8	9/14/2023	10:31 AM	Ammonia control panel
9	9/14/2023	10:31 AM	Ammonia fill station
10	9/14/2023	10:32 AM	Truck grounding reel
11	9/14/2023	10:33 AM	Emergency shower fogger
12	9/14/2023	10:33 AM	Emergency shower fogger
13	9/14/2023	10:37 AM	Ammonia pump
14	9/14/2023	10:39 AM	Aqua ammonia injection skid
15	9/14/2023	10:39 AM	Aqua ammonia injection stack
16	9/14/2023	10:43 AM	Control room
17	9/14/2023	10:44 AM	Control room door and ammonia stove
18	9/14/2023	10:45 AM	Emergency stop in control room
19	9/14/2023	10:45 AM	Ammonia process monitoring panel